



October 6, 2006

The National Organic Standards Board  
c/o Valerie Frances; Room 4008 - South Building  
1400 and Independence Avenue, SW  
Washington, D.C. 20250-0001.

**Re: Invitation for Public Comment on Aquaculture Standards (September 8, 2006)**

Dear Ms. Frances:

Please accept our submission on the Livestock committee's questions for consideration regarding the proposed standards for organic aquaculture. Below this letter, you will find responses to all of the questions posed by the National Organic Standards Board's Livestock Committee; with the exception of the final question on "Slaughter by-products in Aquaculture Feed," which we do not feel is our area of expertise.

Overall, we are in support of organic aquaculture (especially for low food chain species (e.g. shellfish, herbivorous fish, etc.) grown in systems where inputs and outputs can be carefully controlled. However, we have considerable reservations about the concept of organic production concerning carnivorous species (e.g. salmon, tuna, halibut, etc.) especially in open, net-pen systems where significant improvements are needed in the protection of wild ecosystems, human health, and feed procurement.

We are concerned by the committee's apparent need to find a way to certify carnivores at this stage, given the range of issues associated with their production and the numerous ways that farming carnivores are incongruent with organic production principles. We believe that trying to certify farmed carnivores at this stage could erode the high standing that the USDA organic label has with consumers. Given the confusion in the market place over what is sustainable and healthy, it is very important that the USDA organic label remain true to its principles and lead the market place in setting a high bar for healthy and sustainable products.

Thank you for the opportunity to comment.

Regards,

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## **Responses to Questions:**

### **1. Species or Production Method Specific Standards**

*The Livestock Committee invites input relative to identification of and justification for the production systems or categories of species that should be considered separately. Further, the committee invites input on the identification of the specific sections of the Aquaculture Working Group Interim Final Report that may require species or production method specific standards.*

We believe that differentiation among the various types of aquaculture production methods and species are critical issues that must be addressed within the standards set by the Livestock Committee for organic aquaculture. We believe that the issues for consideration by the organic committee are vastly different for the farming of carnivores in open systems (e.g. salmon, cod, halibut, and other species highly dependent on food derived from wild-caught fish) versus those of more traditional aquaculture species grown in closed or semi-closed systems (e.g. tilapia, catfish, and carp).

We do not believe that the production of carnivores is currently consistent with the spirit of organic production mainly due to the numerous scientifically documented environmental impacts associated with open net production (i.e. use of marine resources for feed, contaminants, escapes, disease and parasite transfer, release of chemicals and other drugs, and impacts on predators). As such, we also do not support the use of open, net-pen technology in organic aquaculture at the present time. Net-pens require a free flow of water from the cages to the surrounding marine environment, which is not compatible with the current principles of organic production. The free flow of water also results in the export of nitrogenous waste beyond the farm site with little recycling and composting of waste within the farm, as expected in traditionally-defined organic production. In addition, scientific evidence suggests that even under stringent organic regulations (as well as with traditional net pen farming), using cage technology can pose a substantial risk to the marine environment. In addition to nutrient release, the risk of disease and parasite transfer to wild stocks can be high and there is no scientific consensus currently on safe within-farm disease and parasite levels that protect both wild and farmed fish simultaneously.

Given the issues and numerous inconsistencies (see below) of open net pen carnivorous aquaculture, we are troubled by the committee's apparent haste to certify carnivorous aquaculture as organic. We suggest that the committee start by attempting to certify low trophic level species (shellfish and herbivorous fishes), and let the complicated issues associated with carnivorous aquaculture adapt to better match the principles of organic production before certification.

### **2. Impact on the Environment**

*The Livestock Committee invites input from the organic community, consumers, aquaculture professionals, environmentalists and other interested parties as to how organic aquaculture will*



*meet the requirement of maintaining or improving the environment, including the use of integrated net pen systems as proposed in the Aquaculture Working Group Interim Final Report.*

The key issues for this question relate to the species produced, production methods used, and the localized scale of the production method. There are very different impact or enhancement potentials associated with the various combinations of species and production methods in aquaculture. For example, the farming of carnivores (e.g. salmon, tuna, halibut, etc) has a host of scientifically documented issues associated with it, whereas closed system production systems of low trophic level species can be environmentally benign or even beneficial. The issues associated with open net pen farming of carnivores are issues that have stated importance in the NOSB Principles of Organic Production and Handling. Scientifically documented impacts of carnivores in open systems contradict the principles of organic production (As identified in “Principles of Organic Production” 1.1 on page 25).

The following is a list of the organic principles and the evidence of how the farming of carnivores contradicts the principle:

*1.2.1 Optimize soil (ocean) biological activity:*

- Numerous studies have found the waste from open systems can reduce biodiversity and affect ecosystem function under open systems<sup>14,34, 35</sup>

*1.2.4 Maintain or enhance the genetic and biological diversity of the production systems and its surroundings:*

- Numerous studies have documented how escaped farmed salmon can affect the reproduction, feeding, and genetics of native species<sup>8, 10, 11,18,22, 30, 34, 40, 41</sup>

*1.2.5 Utilize production methods and breeds or varieties that are well adapted to the region:*

- Many open systems use exotic species in their production

*1.2.7 Minimize pollution of soil, water, and air:*

- There is a well-documented history of pollution and habitat impacts from the farming of carnivores in open systems<sup>1,9</sup>

*1.3.1 Providing good quality organically grown feed:*

- Wild fish feeds are not consistent with organic principles and the production of carnivores requires more fish than it produces, representing a net-loss to the ecosystem<sup>28-32</sup>

*1.3.5 Avoiding the routine use of chemical allopathic veterinary drugs, including antibiotics:*

- The farming of carnivores in open systems has a long history of disease issues and drug use<sup>2, 3, 19, 20, 25-27</sup>



Scale is also important with regards to the ability of an aquaculture production system to add or detract from ecosystem functioning. Open net systems have well-documented nutrient and habitat impacts: an average salmon farm of 200,000 fish have been found to release nitrogen, phosphorus, and fecal matter roughly equivalent to a city of 20,000-65,000<sup>13</sup>. The ability for aquaculture to enhance or impact a local ecosystem will be directly proportional to the amount of farming activities present in the region being farmed. We suggest that the Livestock Committee include a standard to address the effects of farm density on local environments and that any open system to be certified be located at least 75 km away from any farming operation, which has been found to be the zone of influence for parasite amplification<sup>6, 19</sup>.

Diversity and functional integrity of ecosystems are concepts of considerable debate among the aquaculture industry and conservationists. Given the importance of these standards, clear definitions, and appropriate measures for monitoring and addressing potential impacts and or enhancement of ecosystems are required. In addition, if open systems are to be certified (which we oppose at this time) strong steps to ensure the implementation of the precautionary principle should be included within the standards to ensure ecosystem integrity is maintained, especially in the absence of baseline ecological information.

We suggest that if any carnivores are to be certified that they only be certified in polyculture systems, which should help mitigate some of the nutrient and waste issues associated with their production. However, it should be noted that the use of polyculture does not alleviate the issues associated with the use of fishmeal and fish oil.

### **3. Differences between Organic and Conventional Aquaculture Standards**

*Comments from organic consumers and other stakeholders on their expectations and explanations of the differences between organic aquaculture and conventional aquaculture methods and products are invited.*

We believe that organic production should represent the gold standard for human health and sustainable production, the statement “good for you and good for the earth” is widely believed to be the consumer expectation of organic products. With the rise in awareness of the importance of sustainability in industry development, companies are increasingly marketing their products as sustainable (often without strict standards). As a consequence of these marketing efforts, confusion is growing among consumers as to what products really are sustainable. The unavoidable levels of residual contamination in farmed carnivores, is also an important issue for organic aquaculture certification. Recent reports for farmed salmon have demonstrated contamination levels of concern to U.S EPA health standards<sup>16</sup>. Although technology has recently been developed to remove contaminants from feed it remains to be seen how effective this will be at reducing contaminant levels to levels acceptable by organic standards. Organics has an established and trusted name to consumers and the USDA should seize the opportunity to set the gold standard for health and sustainability of organic aquaculture.



#### **4. Use of Fish Meal and Fish Oil**

*Will the organic consumer find the temporary 12% fish oil and fish meal allowances acceptable and what will consumer reaction be if (in a worst case scenario) certain aquaculture products no longer qualify as organic after the seven year fish oil and fish meal allowance period expires?*

*Will it be possible for other feed ingredients or organic sources of fish oil and fish meal to be developed within this time frame to replace fish oil and fish meal from sustainable capture fisheries?*

#### ***Farming Carnivores***

The most serious issue for organic aquaculture concerns the farming of carnivorous finfish (e.g. salmon, halibut, etc.). Leading scientists have warned about the inherent unsustainability of “farming up the food web”, because of the relatively inefficient use of marine resources, all of which are already used by humans (commercially) and other organisms<sup>31, 32</sup>. Additionally, although it has been argued that some reduction fisheries are sustainable, present fisheries science models give little consideration to the importance of small pelagic fish in the wider ecosystem. The ecosystem sustainability of reduction fisheries must be resolved before species heavily dependent on these feed inputs can be certified as either sustainable or organic.

Farming carnivores is inherently inefficient because wild fish inputs are larger than farmed fish outputs<sup>30</sup>. Carnivorous aquaculture has experienced a sharp rise in production levels over the last several decades and while aquaculture has historically added to global seafood supplies, the growing trend of farming carnivores threatens to erode this net protein gain<sup>29, 30</sup>. A recent report by the International Fishmeal and Fish Oil Organization has indicated that if the farming of carnivorous fish continues to grow at its current rate, the demand for fish oil is expected to outstrip supply within a decade, with a similar result expected for fish meal by 2050<sup>17</sup>.

We suggest that certifying the use of wild fish as an organic feed input is a direct contradiction of organic principles and the requirement of control at all levels of production. Therefore, we do not support the seven year interim plan that allows the use of 12% fishmeal and fish oil at this time. In addition, the reduction and complete elimination of fishmeal and fish oil is also not consistent with organic principles which state that species was must be fed a diet consistent with their natural diet.

#### ***Alternative feeds***

The predicament of carnivorous aquaculture relates to the use of fishmeal and fish oil which are required for fish energy needs, health, and palatability<sup>30</sup>. Tacon (2005)<sup>36</sup> suggested that although salmonids *do not* have a specific dietary requirement for a particular ingredient such as fishmeal or fish oil (i.e. the diets of wild fish consist mainly of crustaceans, mollusks, and benthic



organisms), fishmeal and fish oil has a nutritional profile that best represents the known dietary requirements of salmonids, and as such, usually has a high value for salmonids compared to other non-marine animal feeds.

Although the overall use of fish meal and fish oil has declined for the salmon aquaculture industry in recent years, it is not currently possible to completely eliminate their use without negatively impacting fish welfare or their nutritional profile. Theoretically, formulating feeds to a specific nutrient profile should be possible and while this has been found to be achievable in the case of fish meal, it has been more problematic for fish oil where there are no commercial alternatives (of sufficient commercial scale of production) currently available<sup>36</sup>.

While it is likely that alternatives to fishmeal and fish oil will be developed within the seven year time period, the numerous scientifically documented environmental concerns with the farming of carnivores, the inconsistency of these alternative diets with organic production principles, and the inconsistency of using wild fish as feed with organic principles call into question the need to certify carnivores as organic at this time.

## **5. Sources of Fish Meal and Fish Oil**

*The Livestock Committee invites suggestions for appropriate criteria for sources of fish meal and fish oil and methods to verify that sources meet such criteria.*

We do not believe that sourcing fish meal and fish oil from wild fisheries is appropriate for organic aquaculture. Wild fish are simply not consistent with the principles of organics that require control over all levels of production. If wild fish are to be used as organic feeds, then we suggest that they be certified by the Marine Stewardship Council (MSC), have a strong ecosystem component that assess' the impact of fisheries removal on ecosystem integrity, and be used for species where the ratio of wild fish inputs to farm fish outputs is equal to or lesser than 1:1.

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1: References cited in this section are not all cited in the text but are cited as additional references in support of statements made within the document.